



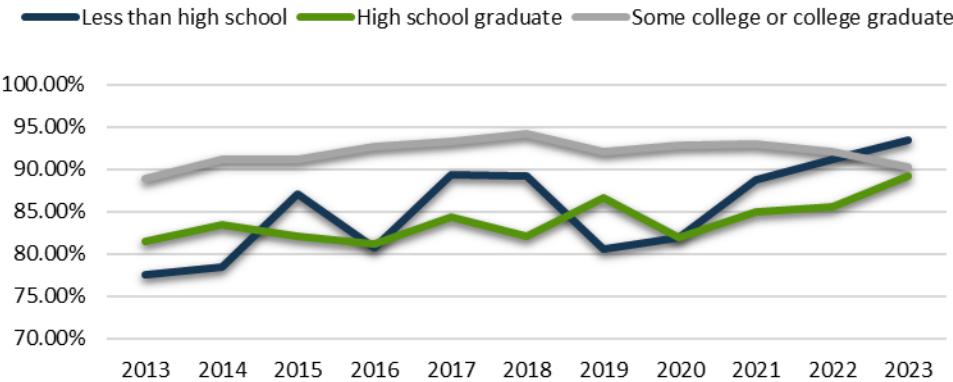
Breastfeeding Education and Initiation Amongst WIC Users (PRAMS 2019-2023)

NJ Pregnancy Risk Assessment Monitoring System (PRAMS) is a joint project of the New Jersey Department of Health (NJDOH) and the Centers for Disease Control and Prevention (CDC). Information from PRAMS is used to help plan better health programs for NJ mothers and infants. One out of every fifty mothers are sampled monthly when newborns are two to six months old. Survey questions address their feelings and experiences before, during, and after pregnancy. The PRAMS sample design oversamples smokers and minorities. Data are weighted to give representative estimates of proportions in specific categories and of actual persons. More than 30,300 birthing persons are included between 2002-2023, with an average response rate of 69%.

Background & Significance

Figure 1: Breastfeeding Initiation by Maternal Education, NJ PRAMS 2013-2023

Source: NJSHAD⁷

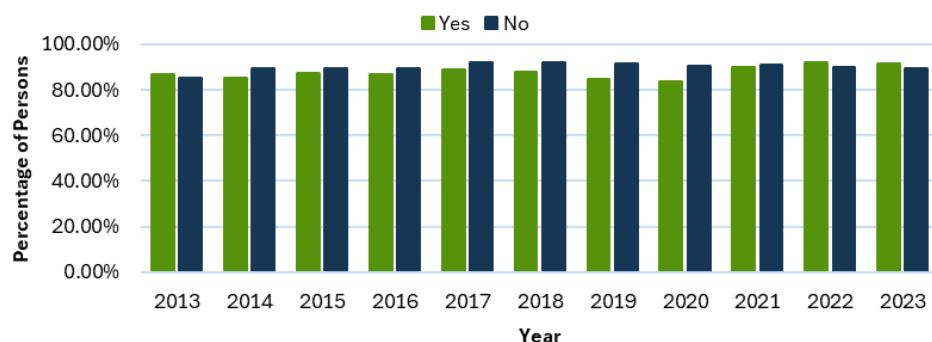


Breastfeeding is an integral part of the reproductive process and recovery from pregnancy, which offers long-lasting health benefits to infants and women. Breastfeeding provides infants with nutrients, supports immune system development, and offers protection against conditions such as asthma, type 1 diabetes, childhood obesity, and middle-ear infections.¹ Evidence also suggests that breastfeeding may be a protective factor against critical conditions such as

childhood leukemia, sudden infant death syndrome, as well as necrotizing enterocolitis, a potentially fatal intestinal infection.¹

Breastfeeding is beneficial to birthing persons as well. Growing research shows that breastfeeding can reduce the mother's risk for breast and ovarian cancer, type 2 diabetes, and high blood pressure.¹ In addition, breastfeeding may be more convenient for birthing persons, as it is cost-effective and human milk does not require preparation.² Furthermore, breastfeeding releases oxytocin, helping mothers feel calmed and relaxed.² Many breastfeeding mothers report increased feelings of self-efficacy and bonding with their infants, which encourages improved maternal mental health.³

**Figure 2: Breastfeeding Initiation by WIC Status, NJ PRAMS
2013-2023**
Source: NJSHAD⁷



2.70).⁶ Within the New Jersey population, high school graduates and those with less than a high school education have consistently seen lower rates of breastfeeding initiation compared to those with at least some college education (Figure 1). Furthermore, the COVID-19 pandemic could have exacerbated these disparities. A study conducted in the United Kingdom found that, other than internet usage, mothers felt a decline in sources for breastfeeding advice during lockdown.⁸

Although the opposite has been true in recent years (2022-2023), birthing persons who participated in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) during pregnancy have historically seen slightly lower rates of breastfeeding initiation compared to those

who did not use WIC during pregnancy (Figure 2). Given that 1) in 2023, those with less than a high school education had a higher prevalence of WIC use during pregnancy than all other maternal education groups, and 2) one of WIC's main priorities is to encourage breastfeeding, it was deemed necessary to explore this topic at the state level.^{7,9}

Methodology

Weighted New Jersey Pregnancy Risk Assessment Monitoring System (NJ PRAMS) data was analyzed from 2019-2023. Those who did not participate in a WIC program during pregnancy ("No" responses to "*During your most recent pregnancy, were you on WIC (the Special Supplemental Nutrition Program for Women, Infants, and Children)?*") were excluded. Logistic regression models were fitted using maternal education as the independent variable and breastfeeding initiation as the dependent variable. Confounders in this study included maternal race, age, delivery insurance, and parity.

Those who responded "Yes" to "*During your most recent pregnancy, when you went for your WIC visits, did you speak with a breastfeeding peer counselor or another WIC staff person about breastfeeding?*" were considered to have received breastfeeding education. Those who responded "No" to the prior question were not considered to have received breastfeeding education. The main model was assessed within each breastfeeding education group to determine the potential effect of breastfeeding education on breastfeeding disparities.

According to the National Immunization Survey, 85.7% of U.S. infants and 88.5% of New Jersey infants born in 2022 were ever breastfed.⁴ Although these measures surpass the prior Healthy People 2020 goal of 81.9%, sociodemographic disparities still exist.⁵ Cohen et al found that the relative risk of breastfeeding initiation for those with high maternal education was 2.3 times that of those with low maternal education (RR: 2.28, 95%CI: 1.92-2.70).⁶ Within the New Jersey population, high school graduates and those with less than a high school education have consistently seen lower rates of breastfeeding initiation compared to those with at least some college education (Figure 1). Furthermore, the COVID-19 pandemic could have exacerbated these disparities. A study conducted in the United Kingdom found that, other than internet usage, mothers felt a decline in sources for breastfeeding advice during lockdown.⁸

Study Purposes:

- To identify any disparities seen in breastfeeding initiation by maternal education within the New Jersey WIC population.
- To assess whether breastfeeding education, provided by WIC, is beneficial in mitigating these disparities.

Descriptive Analysis

PRAMS Population. A majority of the population identified as White non-Hispanic, followed by Hispanic, Black non-Hispanic, and Asian non-Hispanic (Table 1a). Nearly 60% of survey respondents were between 25-34 years old (Table 1a). Approximately 67% of participants had at least some college education, 23% were high school graduates, and over 9% had less than a high school education. Most of the PRAMS study population used private delivery insurance (Table 1a). Over 39% of participants had no previous live births (Table 1a). About 30% of survey respondents used WIC services during their pregnancy.

Study Population. Most of the survey respondents using WIC identified as Hispanic, followed by White non-Hispanic, Black non-Hispanic, and Asian non-Hispanic (Table 1b). Almost 56% of participants were between 25-34 years old (Table 1b). About 44% of survey respondents were high school graduates, 36% had at least some college education, and over 20% had less than a high school education (Table 1b). Nearly three-quarters (72.4%) of the sample used Medicaid as their delivery insurance (Table 1b). Having two or more previous live births was more common in this group (Table 1b). Approximately 84% of study participants received some kind of breastfeeding education through the WIC program (WICBE) while 16% did not (Table 1b).

Table 1. Population Characteristics, NJ PRAMS 2019-2023

Indicator	1a. Study population (N=8,381)	1b. Population Who Used WIC During Pregnancy (N=1,495)
	Weighted Percentage	Weighted Percentage
Maternal Race/Ethnicity		
White, NH	45.82	22.51
Black, NH	12.52	20.08
Hispanic	31.47	54.04
Asian, NH	10.19	3.37
Maternal Age (in Years)		
Less than 20	2.20	4.85
20-24	10.86	19.99
25-34	59.15	55.82
35+	27.79	19.34
Educational Attainment		
Less than high school	9.56	20.22
High school graduate	23.45	43.79
Some College or College Graduate	66.99	35.99
Delivery Insurance		
Private	61.40	18.89
Medicaid	33.60	72.41
No Insurance	5.01	8.70
Parity		
Zero	39.48	30.78
One	33.59	30.56
Two	26.92	38.66
WIC Status		

Yes	29.70	100.00
No	70.30	0.00
WIC Breastfeeding Education		
Yes	/	84.29
No	/	15.71

Statistical Analysis

Study Population. Those with less than a high school education were about 50% less likely to initiate breastfeeding than those with at least some college education (Table 2). After adjusting for confounders, those with less than a high school education were about 63% less likely to initiate breastfeeding than those with at least some college education (Table 2). High school graduates were 58.5% less likely to initiate breastfeeding than those with at least some college education (Table 2). After adjusting for confounders, high school graduates were approximately 61% less likely to initiate breastfeeding than those with at least some college education (Table 2).

Table 2. Effect of Maternal Education on Breastfeeding Initiation, NJ PRAMS 2019-2023

Indicator	Odds Ratio	95% Confidence Interval	P-Value
Less Than High School vs. Some College+			
Crude	0.503	0.304-0.831	p=0.0073
Adjusted*	0.368	0.190-0.713	p=0.0031
High School Graduates vs. Some College+			
Crude	0.415	0.271-0.635	p<.0001
Adjusted*	0.388	0.240-0.629	p=0.0001

*Adjusted for maternal race, age, delivery insurance, and parity.

Participants Who Received WIC Breastfeeding Education. Participants with less than a high school education and who received WICBE were 39% less likely to initiate breastfeeding than those with at least some college education and who had received WICBE (Table 3a). However, the prior results are not statistically significant. After adjusting for confounders, those with less than a high school education and who received WICBE were nearly 58% less likely to initiate breastfeeding than those with at least some college education and WICBE (Table 3a). High school graduates who received WICBE were about 50% less likely to initiate breastfeeding than those with at least some college education and WICBE (Table 3b). After adjusting for confounders, high school graduates who received WICBE were nearly 54% less likely to initiate breastfeeding than those with at least some college education and who received WICBE (Table 3b).

Participants Who Did Not Receive WIC Breastfeeding Education. Survey respondents with less than a high school education and who did not receive WICBE were over 81% less likely to initiate breastfeeding than those with at least some college education and who did not receive WICBE (Table 3a). After adjusting for confounders, survey respondents with less than a high school education without WICBE were 84% less likely to initiate breastfeeding than survey respondents with at least some college education without WICBE (Table 3a). High school graduates without WICBE were almost 83% less likely to initiate breastfeeding than those with at least some college education who did not receive WICBE (Table 3b). After adjusting for confounders, high school graduates without WICBE were about 84% less likely to initiate breastfeeding than those with at least some college education without WICBE (Table 3b).

Table 3a. Effect of Maternal Education on Breastfeeding Initiation by WIC Breastfeeding Education Status: Less Than High School vs. Some College+, NJ PRAMS 2019-2023

Indicator	Odds Ratio	95% Confidence Interval	P-Value
Received WIC Breastfeeding Education			
Crude	0.610	0.352-1.058	p=0.0785^
Adjusted*	0.422	0.206-0.864	p=0.0184
Did Not Receive WIC Breastfeeding Education			
Crude	0.186	0.052-0.672	p=0.0105
Adjusted*	0.160	0.026-0.970	p=0.0463

*Adjusted for maternal race, age, delivery insurance, and parity. ^Result not statistically significant.

Table 3b. Effect of Maternal Education on Breastfeeding Initiation by WIC Breastfeeding Education Status: High School Graduates vs. Some College+, NJ PRAMS 2019-2023

Indicator	Odds Ratio	95% Confidence Interval	P-Value
Received WIC Breastfeeding Education			
Crude	0.501	0.314-0.799	p=0.0037
Adjusted*	0.461	0.272-0.781	p=0.0040
Did Not Receive WIC Breastfeeding Education			
Crude	0.172	0.061-0.485	p=0.0010
Adjusted*	0.162	0.042-0.623	p=0.0083

*Adjusted for maternal race, age, delivery insurance, and parity.

Agenda for Action

Based on these study results, one can conclude that maternal education does play a role in breastfeeding initiation in the New Jersey WIC population. Both WIC participants with less than a high school education and those who were high school graduates were less likely to initiate breastfeeding than those with at least some college education. Additionally, findings from this study suggest that WIC breastfeeding education may be instrumental in reducing gaps in breastfeeding initiation observed in maternal education. When drawing comparisons by WIC breastfeeding education status, there was a 26.2% difference between those with less than a high school education who received WICBE versus those who did not receive WICBE (AOR= 0.422 vs. 0.160, respectively). Furthermore, there was a 29.9% difference in breastfeeding initiation seen between high school graduates who received WICBE versus high school graduates who did not receive WICBE (AOR= 0.461 vs. 0.162, respectively). New Jersey WIC programs should continue to provide breastfeeding education and support to help reduce any adverse effects that maternal education may have on breastfeeding initiation.

The 2022-2027 New Jersey Breastfeeding Strategic Plan provides a roadmap of actions that the state government, health care providers, employers, and other stakeholders can take to address disparities and improve breastfeeding rates in New Jersey. The plan focuses on six strategic issue areas: 1) parents, families, and communities, 2) health care, 3) employment/childcare, 4) research/surveillance, 5) public health infrastructure/policy/legislation, and 6) emergency preparedness and public health crises. A central theme of the plan is the need to increase breastfeeding and human milk feeding information, awareness, and education, not only for the breastfeeding parent, but for all sectors who impact the parent.¹⁰

Healthy Women Healthy Families is an initiative that focuses on improving maternal and infant health outcomes throughout New Jersey. This program promotes breastfeeding by providing education for both traditional (e.g., mothers) and non-traditional groups (e.g., fathers, grandparents, partners, siblings, and teens). This initiative enables community doulas to offer breastfeeding and human milk feeding support to participants.

www.nj.gov/health/fhs/maternalchild/hwhf

New Jersey home visitation services provide education, assistance, and support to improve breastfeeding initiation and duration. For example, the NJ Universal Home Visitation Program provides free visits from a trained nurse within two weeks of the birth to all birthing, adoptive, and resource parents.

www.familyconnectsnj.org/22785/widgets/74918/documents/49978



The New Jersey Breastfeeding Coalition promotes breastfeeding by offering support and evidence-based, culturally sensitive educational materials. The goal is to normalize and encourage breastfeeding in birthing persons.
breastfeedingnj.org

Strengths & Limitations

The NJ PRAMS sample is representative of the population. This weighted analysis can be applied to all mothers who delivered a live birth in NJ during 2019-2023. PRAMS was designed to supplement the vital records data by providing state-specific information on maternal behaviors and experiences for planning and evaluating perinatal health programs. Since PRAMS uses a standardized methodological approach, it eases data comparison across states. In addition, NJ PRAMS data is weighted to produce estimates that are representative of the population across specific categories. Despite these strengths, PRAMS survey data are subject to limitations, including recall, non-response, and social desirability biases.

Resources

Note on Language and Grammar

In alignment with the Nurture NJ Maternal and Infant Health Strategic Plan and other recent publications, this document uses language conventions that are intended to be universal and inclusive. We use the phrases and terms "maternal health", "mother", "woman", "she" and "her" to refer to a person who recently gave birth. We recognize that not all birthing people identify as women; these terms are meant to include cisgender females, non-binary individuals, and transgender men. The terms survey respondents and mothers are used interchangeably.

In keeping with APA guidance, all racial and ethnic groups are capitalized as they are considered proper nouns.

Contact NJ PRAMS: mchepi@doh.nj.gov Website: nj.gov/health/fhs/maternalchild/mchepi/prams

Learn more about New Jersey WIC: www.nj.gov/health/fhs/wic

NJ Supports Breastfeeding: www.njsupportsbreastfeeding.org

Authors

Gaëlle Casimir, MPH – Health Data Specialist Apprentice, Division of Family Health Services, NJDOH
Genevieve Lalanne-Raymond, MPH, BSN, RN – NJ PRAMS Project Director, Division of Family Health Services, NJDOH
Sharon Cooley, MPH – NJ PRAMS Project Coordinator, Family Health Services, NJDOH
Ellen Maughan, JD, IBCLC, New Jersey State Breastfeeding Coordinator, Central New Jersey Family Health Consortium

Reference List

1. National Academies of Sciences, Engineering, and Medicine. 2025. *Breastfeeding in the United States: Strategies to Support Families and Achieve National Goals*. Washington, DC: The National Academies Press.
<https://doi.org/10.17226/29118>. Available at <https://www.nationalacademies.org/our-work/understanding-breastfeeding-promotion-initiation-and-support-across-the-united-states-an-analysis>
2. Johns Hopkins Medicine. The Benefits of Breastfeeding. www.hopkinsmedicine.org/johns-hopkins-howard-county/services/mothers-and-babies/breastfeeding
3. Tucker, Z., & O'Malley, C. (2022). Mental Health Benefits of Breastfeeding: A Literature Review. *Cureus*, 14(9), e29199. <https://doi.org/10.7759/cureus.29199>
4. Centers for Disease Control and Prevention. Rates of Any and Exclusive Breastfeeding by State among Children Born in 2022. Cdc.gov. [cdc.gov/breastfeeding-data/modules/2022-rates-any-exclusive-bf-state.htm](https://www.cdc.gov/breastfeeding-data/modules/2022-rates-any-exclusive-bf-state.htm).
5. General (US) O of the S, Prevention (US) C for DC and, Health (US) O on W. Table 3, Healthy People 2020 Objectives for Breastfeeding. www.ncbi.nlm.nih.gov/books/NBK52684/table/breastfeeding.t1/
6. Cohen SS, Alexander DD, Krebs NF, et al. Factors Associated with Breastfeeding Initiation and Continuation: A Meta-Analysis. *The Journal of Pediatrics*. 2018;203:190-196.e21. doi: <https://doi.org/10.1016/j.jpeds.2018.08.008>
7. New Jersey Department of Health. New Jersey State Health Assessment Data (NJSRAD). Nj.gov. <https://www-doh.nj.gov/doh-shad/>
8. Costantini C, Joyce A, Britez Y. Breastfeeding Experiences During the COVID-19 Lockdown in the United Kingdom: An Exploratory Study Into Maternal Opinions and Emotional States. *Journal of Human Lactation*. 2021;37(4):089033442110265. doi: <https://doi.org/10.1177/08903344211026565>
9. United States Department of Agriculture. Breastfeeding Is a Priority in the WIC Program | Food and Nutrition Service. Usda.gov. Published 2016. <https://www.fns.usda.gov/wic/breastfeeding>
10. New Jersey Department of Health. Department of Health | News | NJ Health Department Releases New Jersey Breastfeeding Strategic Plan Providing Blueprint to Improve Breastfeeding Rates and Support. [www.nj.gov](https://www.nj.gov/health/news/2022/approved/20220922a.shtml). Published September 22, 2022. Accessed September 26, 2022. <https://www.nj.gov/health/news/2022/approved/20220922a.shtml>